



BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Foundation Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Extended Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Civil Engineering Pearson BTEC International Level 3 Extended Diploma in Construction and the Civil Engineering Pearson BTEC International Level 3 Diploma in Building Services Engineering Pearson BTEC International Level 3 Extended Diploma in Building Services Engineering
Unit number and title	Unit 14: Low Temperature Hot Water Systems in Building Services
Learning aim(s) (For NQF only)	Learning Aim A: Understand the design requirements for a LTHW system
Assignment title	Assignment 1 - Principles of Designing Central Heating for a Domestic House
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are a technical apprentice with a building services consultancy practice. As part of your training your manager is wanting you to design a gas fired heating system for stored hot water and space heating by radiators for a new terraced house. See Figure 1 and Figure 2. The following data have also been provided: Room height 2.4m Design temperatures: External temperature -1°C Living room 21°C Kitchen/Diner 18°C Bedroom 18°C Hall/landing 18°C Bathroom 22°C Toilet 18°C Air changes per hour: Bedroom 1.0 Living room 1.5 Hall/landing 1.5 Bathroom 2.0
---------------------------------------	--



	Toilet 2.0 Kitchen/Diner 2.0 U Values (W/m²K): External wall 0.24 First floor ceiling 0.15 Ground floor 0.14 Windows/doors 1.40 Ground floor ceiling 0.00 Party wall 0.00 Allow a load of 2000 watts for the hot water
Task 1	Before you commence the design of the heating system your manager wants to know that you understand the factors that need to be considered when designing the heating installation for the building. Write a report that identifies and details the factors that need to be considered when designing heating installations. The relevance and significance of factors should be discussed. The factors considered in the report will need to include: • Heating requirements • Design conditions • External considerations • Heat losses
Checklist of evidence required	A word processed report that is referenced and includes images to support the written text. The report will need to cover how the following factors need to be considered in the heating design for the terraced house: • Heating requirements • Design conditions • External considerations • Heat losses
Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
12/A.P1	Explain the factors that need to be considered when designing heating installations.
12/A.M1	Analyse the factors that need to be considered when designing heating installations for a given building.
12/A.D1	Evaluate the factors that need to be considered when designing heating installations for a given building.





Sources of information to support you with this Assignment	Burberry, P, Environment and Services (Mitchells Building Series), (8th edition), Routledge, 2015, ISBN 9781138167780. This book explains principles of services installations and environmental considerations and is relevant to the content of this unit. Greeno, R, Building Services Handbook (8th edition), Routledge, 2015, ISBN 9781138805637. This book is a handbook covering all aspects of building services in a concise manner. McMullan R. Environmental Science in Building, 7th Edition Palgrave Macmillan, 2012 ISBN 9780230290808 The most recognised book which is considered a credible text regarding building science. Ray Ward, Domestic Central Heating Wiring Systems and Controls, 2 Edition Routledge, 2005, ISBN9780750664363 This book provides a comprehensive reference manual for hundreds of items of heating and control equipment. Journals Building Services Engineering Research & Technology (BSERT), Sage Publishing This is CIBSE's quarterly journal containing useful research relevant to all aspects of building services engineering. http://journals.sagepub.com/home/bse P & HE Journal, Chartered Institute of Plumbing and Heating Engineers (CIPHE) This is the CIPHE online journal which covers a broad range of areas relating to plumbing and heating. http://www.ciphe.org.uk/professional-members/publications/ Websites http://www.cibse.org/ This is the website of Chartered Institute of Building Services Engineers (CIBSE) which is the professional body for building services engineers. The website contains information about the codes, products and industry updates. http://www.modbs.co.uk/ This is the website of Modern Building Services (MBS) covering a wide range of building services engineering sectors. Further Resources may be found at: www.edexcel.com/resources/Pages/default.aspx Note to Tutors: This list of resources should be
---	--



	customised to reflect the resources available within the centre
Other assessment materials attached to this Assignment Brief	<i>Figure 1 and Figure 2 – Floor plans for the terraced house.</i>